A Class of Solvable Optimal Stopping Problems of Spectrally Negative Jump Diffusions

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Abstract. We consider the optimal stopping of a class of spectrally negative jump diffusions. We state a set of conditions under which the value is shown to have a representation in terms of an ordinary nonlinear programming problem. We establish a connection between the considered problem and a stopping problem of an associated continuous diffusion process and demonstrate how this connection may be applied for characterizing the stopping policy and its value. We also establish a set of typically satisfied conditions under which increased volatility as well as higher jump-intensity decelerates rational exercise by increasing the value and expanding the continuation region.

Keywords jump diffusions; optimal stopping; nonlinear programming; perpetual American options;